

Mathematics Grade 8

Paper/Pencil Classroom Activity

South Pole

The Classroom Activity introduces students to the context of a performance task, so they are not disadvantaged in demonstrating the skills the task intends to assess. Contextual elements include: an understanding of the setting or situation in which the task is placed, potentially unfamiliar concepts that are associated with the scenario, and **key terms** or vocabulary students will need to understand in order to meaningfully engage with and complete the performance task. The Classroom Activity is also intended to generate student interest in further exploration of the key idea(s). The Classroom Activity should be easy to implement with clear instructions.

Please read through the entire Classroom Activity before beginning the activity with students to ensure any classroom preparation can be completed in advance.

Resources Needed:

- Projector or some method of displaying images¹
- A whiteboard, chalkboard, or some other method to record student responses

Learning Goals:

- The student will understand the context of the key ideas related to the topic:
 - The location of and weather conditions at the South Pole
 - Reasons to go to the South Pole
 - Dietary considerations when exploring the South Pole
- The student will understand the following vocabulary:
 - **South Pole:** an area in Antarctica; the southernmost point in the world
 - **Expedition:** a journey taken by a group of people with a particular purpose, especially exploration or research
 - **Climate:** the weather conditions common to an area in general or over a long period of time
 - **Calorie:** a unit used to indicate the amount of energy that foods will produce in the human body
 - **Pemmican:** a dried meat product that does not freeze or require a lot of preparation

Definitions are provided here for the convenience of facilitators. Students are expected to understand these key terms as they arise in the context of the task, not to be able to recite the definitions.

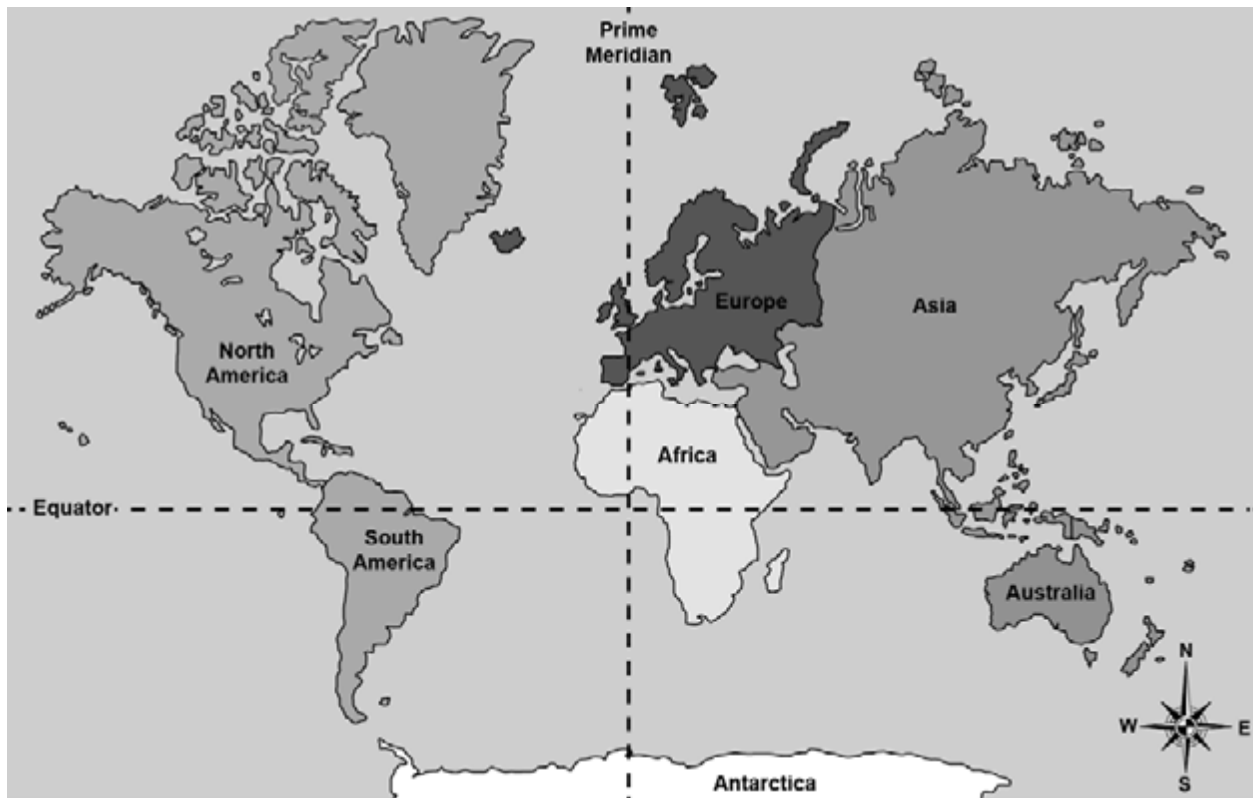
¹ Instead of displaying Figure 1, the last page of this document can be used as a handout to students.

South Pole Classroom Activity

[Purpose: The facilitator’s goal is to introduce the students to the South Pole and help them think about the purposes of taking a trip to the South Pole.]

Facilitator says: “Today, in preparation for your performance task, we are going to talk about the South Pole. Who can tell me where the South Pole is?” [Allow students to discuss. Possible answers include the southernmost point in the world and a place in Antarctica. Facilitator should show or hand out **Figure 1** and explain that the South Pole is in Antarctica.]

Figure 1. Map of the World



[For students who are visually impaired, describe the figure orally using the description given.]

[Picture Description: “The picture shows a map of the world with each continent labeled. There is also a dotted vertical line down the middle labeled Prime Meridian and a dotted horizontal line through the middle labeled Equator.”]

Facilitator says: “Does anyone know any reasons why people go to the South Pole?” [Allow students to discuss. Some reasons that the students might bring up include research, skiing expeditions, wildlife exploration, and tourism.]

Facilitator says: “Scientists frequently take expeditions to the South Pole to examine its weather conditions and wildlife. Who can tell me what an expedition is?” [Allow students to discuss. Make sure that all students understand that an expedition is a journey undertaken by a group of people with a particular purpose.]

Facilitator says: “What things do you think people pack when they take an expedition to the South Pole?” [Allow students to respond. Make sure students mention cold weather clothes and food.]

Facilitator says: “The climate at the South Pole is the coldest in the world. Can anyone guess how cold it gets at the South Pole?” [Allow students to respond. Record student responses on a whiteboard or chalkboard.]

Facilitator says: “During the summer, the high temperature averages –26 degrees Celsius, or –15 degrees Fahrenheit. During the winter, temperatures regularly get down to –58 degrees Celsius, or –72 degrees Fahrenheit. It can be difficult to even imagine temperatures that cold. For example, the temperature of the average refrigerator freezer is –18 degrees Celsius, or 0 degrees Fahrenheit.” [Allow students to ask questions.]

Facilitator says: “These conditions also mean that you need more energy when taking long expeditions to the South Pole. How do you think South Pole explorers get that extra energy?” [Allow students to discuss. Make sure that students understand that South Pole explorers need to eat more food than the average person.]

Facilitator says: “The amount of energy that foods produce is calculated in calories. The average adult needs to eat about 2400 calories to maintain his or her current weight. South Pole explorers need to eat around 6000 calories a day to keep their energy at the level that it needs to be.” [Allow students to ask questions.]

Facilitator says: “What kind of food would you bring to the South Pole?” [Allow students to respond.]

Facilitator says: “Because of the cold conditions, food at the South Pole regularly freezes over. It can take from several hours to days for food to thaw completely. The weather can also make it very difficult to prepare food. Because of this, some South Pole explorers use a dried meat product called pemmican to keep their energy level up. Since pemmican does not freeze or require a lot of preparation and it does have a significant amount of calories, it is the perfect food for South Pole explorers.” [Allow students to ask questions.]

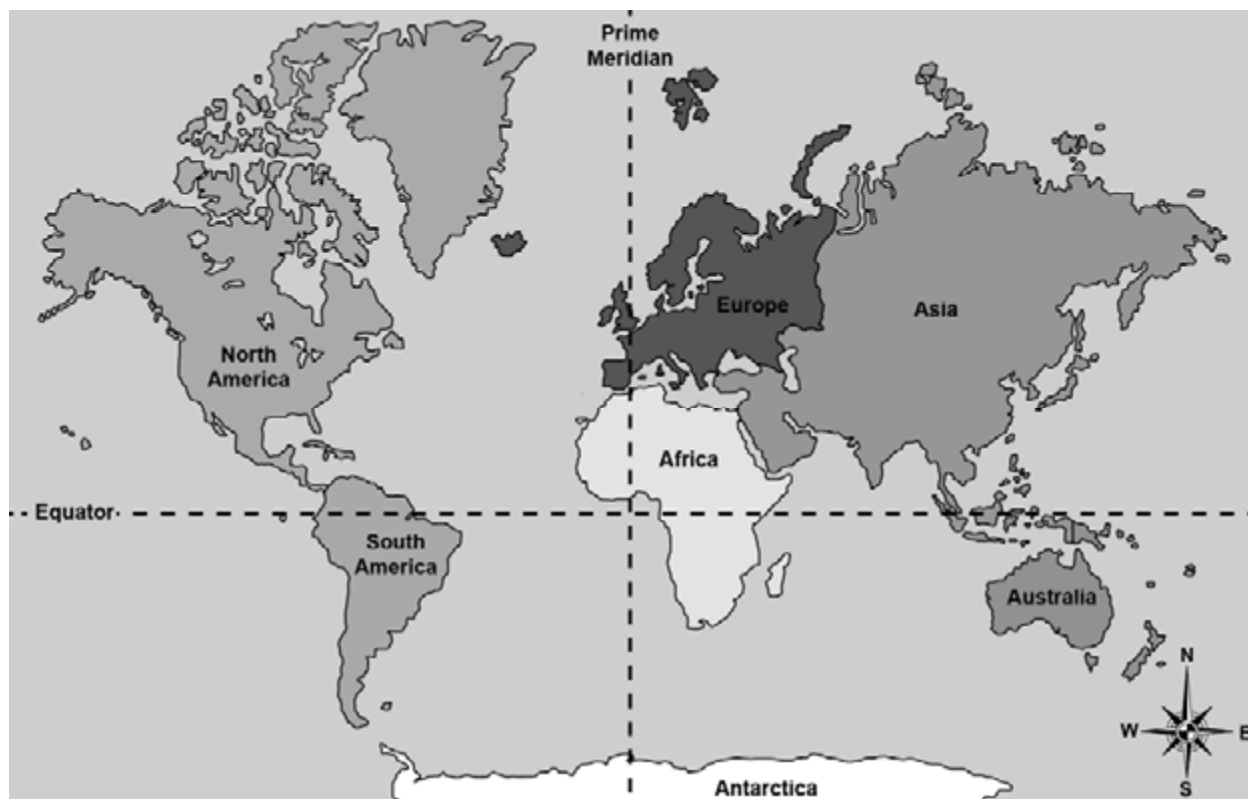
Facilitator says: “Today, we completed an activity about taking a trip to the South Pole. These ideas may help you when you complete your performance task.”

Facilitator says: “Are there any questions?” [Allow for student questions.]

Facilitator says: “You are now ready to complete the South Pole Performance Task.”

Resource Documents

Figure 1. Map of the World



[For students who are visually impaired, describe the figure orally using the description given.]

[**Picture Description:** “The picture shows a map of the world with each continent labeled. There is also a dotted vertical line down the middle labeled Prime Meridian and a dotted horizontal line through the middle labeled Equator.”]